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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,220

04/26/2006

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Q94662

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EXAMINER

BEST, ZACHARY P

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,220	<b>Applicant(s)</b> FUNATO ET AL.	
	<b>Examiner</b> Zachary Best	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04262006, 08012008</u> .                                      | 6) <input type="checkbox"/> Other: _____                          |

**LEAD-ACID BATTERY AND MANUFACTURING METHOD THEREOF**

Examiner: Z. Best    S.N. 10/577,220    Art Unit: 1795    July 30, 2008

***Election/Restrictions***

1.      Restriction is required under 35 U.S.C. 121 and 372. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, Claims 1-5, drawn to a lead-acid battery.

Group II, Claims 6-8, drawn to a method of manufacturing a lead-acid battery.

2.      The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I requires an electrolyte comprising a volatile organic acid, which Group II does not require. Group II requires a separator containing a surfactant, which Group I does not require.

3.      During a telephone conversation with Ms. Gardner on July 23, 2008 a provisional election was made without traverse to prosecute the invention of Group I, Claims 1-5. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 6-8 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Objections***

4. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

5. Claim 3 is objected to as being an improper Markush claim. *See* MPEP 2173.05(h). Examiner suggests the following change "wherein said volatile organic acid is selected from the group consisting of... and mixtures thereof."

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fujita (US 5,677,075 A).

Regarding Claims 1-3, Fujita teaches a lead-acid battery which comprises a positive electrode, a negative electrode, a separator, and an electrolyte (col. 16, lines 22-51), wherein said electrolyte contains a volatile organic acid, such as carboxylic acid (col. 3, lines 33-35). Although Fujita does not specifically teach the content of said volatile organic acid is equal to 250 mg or higher per liter of said electrolyte, it is Examiner's position that the lead-acid battery of Fujita would meet said limitation because the electrolyte solution starts as a water with a pH of 7 (col. 10, line 23) and through the presence of carboxylic acid (HCOOH) (col. 3, lines 33-35) drops down to a pH of 2-3 (col. 11, lines 1-3). Therefore, a significant amount of carboxylic acid per liter of water would be required to lower the pH to such a degree. A reference that is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. *In Re Roberston* 49 USPQ2d 1949 (1999).

Alternatively, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the amount of carboxylic acid in the battery of Fujita because the acidity of the electrolyte affects the conductivity of the battery (col. 3, lines 64 - col. 4, line 21). Discovery of an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272 (CCPA 1980).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1795

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita, as applied to Claims 1-3, and further in view of O'Rell et al. (US 4,216,281).

Regarding Claims 4-5, Fujita teaches the lead acid battery as recited in paragraph 7 above. However, Fujita fails to teach said separator contains a surfactant or is composed of polyethylene.

O'Rell et al. teach a lead acid battery separator (claim 1), wherein said separator is composed of polyethylene due to its high branching or fibrillation (col. 3, lines 22-36) and contains a surfactant to reduce the electrical resistance of the separator (col. 4, lines 48-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to create the lead acid battery of Fujita, wherein the separator is composed of polyethylene and has a surfactant because O'Rell et al. teach the polyethylene has high branching or fibrillation properties and the surfactant will reduce the electrical resistance of the separator.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary Best whose telephone number is (571) 270-3963. The examiner can normally be reached on Monday to Thursday, 7:30 - 5:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

zpb

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795